NON-PUBLIC?: N
ACCESSION #: 8809200227
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Surry Power Station, Unit 1 PAGE: 1 of 4

DOCKET NUMBER: 05000280

TITLE: Reactor Trip/Safety Injection Due To Spurious Hi CLS Signal
As A Result Of A Malfunctioning Relay
EVENT DATE: 08/15/88 LER #: 88-029-00 REPORT DATE: 09/14/88

OPERATING MODE: N POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: D.L. Benson, Station Manager TELEPHONE: (804)357-3184

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: SI COMPONENT: RLY MANUFACTURER: W120
X RP RLY W120
X TM XXXX W120
REPORTABLE TO NPRDS: Y
Y
Y

SUPPLEMENTAL REPORT EXPECTED: Yes

EXPECTED SUBMISSION DATE: 01/31/89

ABSTRACT:

On August 15, 1988 at 0927 hours, a Unit 1 reactor trip and safety injection occurred due to the spurious initiation of train "A" High Consequence Limiting Safeguard (Hi CLS). The spurious signal was generated during the performance of a periodic test on the train "A" Hi CLS system. A relay malfunction is the suspected cause of the spurious signal. The relay is actuated by a test terminate button. It is believed that a single relay contact failed to close when the button was depressed, resulting in a Hi CLS signal. Operators followed appropriate plant procedures and quickly stabilized the plant following the trip. The suspect relay will be analyzed by the system lab and recommendations will be considered when the report is received.

END OF ABSTRACT

1.0 Description of the Event

On August 15, 1988 at 0927 hours, a Unit 1 reactor trip and safety injection occurred due to the spurious initiation of train "A" High Consequence Limiting Safeguards (Hi CLS). The spurious signal was generated during the performance of a periodic test on the train "A" Hi CLS system.

During and following the trip, plant systems and equipment performed as designed with the following exceptions:

1) One of the eight steam dump valves (turbine bypass to condenser) indicated intermediate position when it was actually fully closed.

2) The number 3 emergency diesel generator (3EDG) high crankcase pressure alarm was received.

3) Channel 4 trip status light, turbine power greater than 10%, did not clear when turbine power dropped below 10% and the P-7 permissive was not enabled when turbine power and reactor power were less than 10%.

4) The "A" main feedwater bypass valve was unable to be opened when placing main feedwater in service following the reset of the safety injection signal.

In addition, the Refueling Water Storage Tank (RWST) level was noted to have dropped below the Technical Specification minimum as a result of the safety injection in progress.

2.0 Safety Consequences and Implications

The Hi CLS engineered safety feature (ESF) is designed to place the plant in a safe condition upon receipt of a containment high pressure signal indicative of a primary or secondary loss of coolant inside the containment vessel. Although the signal in this case was not due to an actual containment high pressure condition, plant systems functioned as designed (with the exception of those items listed above) to leave the plant in a safe and stable condition. Therefore the health and safety of the public were not affected.

3.0 Cause

A relay malfunction EIIS-RLY is the suspected cause of the spurious train "A" Hi CLS signal. The suspected relay is exercised at the close of the Hi CLS test procedure by depressing a test terminate button. The test terminate button realigns the circuitry from the test position to the normal position. It is believed that a single relay contact failed to close when the button was depressed resulting in a Hi CLS signal and subsequent ESF actuation.

The failure of the steam dump valve position indication was due to an improperly adjusted limit switch.

The #3 EDG high crankcase pressure alarm is believed to have been caused by a malfunctioning pressure switch.

A failed pressure comparator resulted in the failure of the trip status light to clear when turbine power was less than 10% and four failed relays prevented the P-7 permissive from actuating.

4.0 Immediate Corrective Action(s)

Following the trip, operators utilized the appropriate plant emergency procedures to stabilize the plant. The Shift Technical Advisor (STA) reviewed the critical safety function status trees to ensure plant parameters remained within safe bounds.

5.0 Additional Corrective Action(s)

1) The suspect relay, in the Hi CLS circuitry, was replaced and will be sent to our systems lab for analysis.

2) The limit switch on the steam dump valve was adjusted.

3) The pressure comparator and the four failed relays in the channel 4, P-7 circuitry, were replaced. Similar relays in the channel 3, P-7 circuitry, were inspected and found to be correctly positioned.

4) The RWST level was returned to the required level.

5) The #3EDG was tested satisfactorily, following the event, and no high crankcase pressure alarm was received. However, the suspect pressure switch will be replaced.

6.0 Action(s) Taken to Prevent Recurrence

Recommendations from our systems lab, concerning the suspect Hi CLS relay, will be considered when the report is received. An evaluation of a surveillance program for parallel relays, such as the type used in the P-7 circuitry, will be conducted.

7.0 Similar Events

None.

8.0 Manufacturer/Model Number

Hi CLS Relay: Westinghouse BFD 44
P-7 Relays: Westinghouse BF 48
Pressure Comparator: Westinghouse

ATTACHMENT 1 TO 8809200227 PAGE 1 OF 1

VIRGINIA ELECTRIC AND POWER COMPANY
Surry Power Station
P.O. Box 315
Surry, Virginia 23883

September 14, 1988

U.S. Nuclear Regulatory Commission Serial No.: 88-045
Document Control Desk Docket No.: 50-280
016 Phillips Building Licensee No.: DPR-32
Washington, D.C. 20555

Gentlemen:

Pursuant to surry Paver Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report for Surry Unit 1.

REPORT NUMBER

88-029-M

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be reviewed by Safety Evaluation and Control.

Very truly yours,

David L. Benson
Station Manager

Enclosure

cc: Dr. J. Nelson Grace
Regional Administrator
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30323

*** END OF DOCUMENT ***